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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,190	03/27/2004	Gary K. Michelson	101.0111-01000	8660
22882	7590	10/31/2005		
MARTIN & FERRARO, LLP 1557 LAKE O'PINES STREET, NE HARTVILLE, OH 44632			EXAMINER SHAFFER, RICHARD R	
			ART UNIT	PAPER NUMBER
			3733	
DATE MAILED: 10/31/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/810,190	MICHELSON, GARY K.	
	Examiner	Art Unit	
	Richard R. Shaffer	3733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/27/04, 8/23/04, 9/12/04, 10/24/05</u>                                   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The Information Disclosure Statement filed on March 26, 2004 has citations not considered by the examiner. The SPINAL CONCEPTS Brochure, ORTHO DEVELOPMENT Brochure, and OSTEOTECH Brochure have not had a copy submitted for examination and thus have not been considered.

### ***Drawings***

The drawings are objected to because they are replete with errors for example:

- Reference character **128** is used in two different areas for “tool-engagement area” in **Figure 2**. Examiner believes one should be **142** instead.
- Reference characters for embodiments **300+** consistently have numerals in the figures not addressed in the specification. Also, **138** is not shown in the drawings as well.
- **Figure 12** does not clearly point out the ramped surface or vertical wall in a ratchet.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

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and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

The disclosure is objected to because on page 14, "ratchetings **150**" should be "ratchetings **152**". Appropriate correction is required.

#### ***Claim Objections***

Claim 23 is objected to because of the following informalities: It contains the phrase "the wherein" which does not support the rest of the claim. It has been interpreted as though it was not there. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 101***

Claim 41 is rejected under 35 U.S.C. 101 because the claimed invention is inoperative and therefore lacks utility. The addition of genes coding for the production of bone in a fusion implant is not functional different from the equivalent fusion implant without the genes coding for the production of bone. Genes are required to be within a cell (the nucleus) for transcription to take place (production of RNA). Once RNA has been produced, then it can be translated by ribosomes into protein. One could see how

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RNA could enhance bone growth because it only needs to be present in the cytoplasm. However, it still is impractical due to the unstable nature of RNA. This is why current practice focuses bone morphogenetic proteins or growth factors. Growth factors are useful because they enhance gene expression of bone producing genes.

Applicant will have to provide laboratory data demonstrating the usefulness of claimed invention should applicant feel the examiner is incorrect in the above paragraph.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5, 7, 8, 10, 11, 14-22, 25, 25, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Mangione, et al (WO 00/01314).

Mangione, et al disclose a plate (6) that overlaps at least a portion of two adjacent cervical vertebral bodies (**Figure 7**); a first plate segment (10), second plate segment (8), and a third segment (4) integrally formed to the second plate segment; the first and second segments are moveable in relation to each other along the longitudinal axis of the plate; and fastened together by a screw lock (16).

The method shown and inherent to this device is: bone screw (14) is inserted through each of the first and second segments into the vertebral bodies; screwing bone

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screw (12) into the bone and placing the segments on top, bone screws (12) with screw lock (16); and optionally permitting movement of the plates relative to each other.

The device has two options in all cases, to allow movement or to remain rigid. This solely depends on how tight the surgeon tightens screw lock (16) into place. If tightly screwed, the plates will remain rigid to each other. If lightly screwed, they will be able to slide along slot (61). If when using the light screwed option, when the bone fuses, the plate segments will be free to move towards each other.

In regard to claims 7, 8, 10, 11, 14-19, on the bottom of page 8 and top of page 9, you will see Mangione, et al discuss that contraction or distraction can be performed before inserting locking screw (16) in order to achieve a proper placement of the plates.

In regard to claims 20-22, there are two interpretations possible. One, the fastener may not be engaged with the lower plate, and once lowered slightly, will engage the lower plate and inhibit movement in the transverse direction but still allow movement in the longitudinal direction. The other interpretation is that the screw is engaged with both plates and when tightened forces the plates together inhibiting all movement.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 23, 27, 28, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangione, et al. Mangione, et al already disclosed one would use the device for contraction or distraction. Ideally, with a device prone to sliding, one would supply a plurality of lengths for use by a surgeon. This would allow him to position the screw **12/16** at one of the ends of slot **61** so that it could only slide towards or away from the other plate. It is also well known in the art to provide implants that fit anatomically to a patient. Thus various configurations of curvature would be well within practice and ability of one of ordinary skill in the art.

Claims 6, 9, 12, 13, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangione, et al in view of Borges (US Patent 3,604,414). It is already well known in the art to utilize instruments during surgery because of limited space and requiring the ability to see what is being performed. Mangione, et al was silent in terms of an instrument being used, however Borges teaches an instrument (**12**) that engages the bone plate to bring the segments together. Since applicant loosely used the term "instrument" to refer to both a gripping element and a tightening element, it would have been inherent to use a tightening element for Mangione, et al due to the use of screws. In regard to claims directed to sequential increments when moving the two plates together, it can be shown in **Figures 1 and 2** of Borges that the engaging instrument (**12**) has threads (**66**) which would also inherently compress in increments the plate segments together

Claims 32-40 and 42-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangione, et al in view of Bacelli (US Patent 6,306,136) in further

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view of common knowledge in the art. All of the claimed limitations were disclosed in Mangione, et al except using the device in conjunction with an interbody spinal fusion implant. Bacelli teaches (Column 1, Paragraph 4) that it is well known to use a bone fusion implant made of hydroxyapatite, bone graft, or bone substitutes. One of ordinary skill in the art would also have found it obvious to use an artificial implant, use bone morphogenetic protein, bioresorbable material (if the fusion alone would be enough support), using a substance to inhibit scar formation, as well as coating, treating, or combining the plate with an antimicrobial material.

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mangione, et al in view healthatoz.com

([http://www.healthatoz.com/healthatoz/Atoz/ency/bone\\_growth\\_stimulation.jsp](http://www.healthatoz.com/healthatoz/Atoz/ency/bone_growth_stimulation.jsp)).

Mangione, et al discloses all of the claimed limitations except electrifying the plate, fastener, and screw to stimulate bone growth and contribute to bone fusion. The website teaches that it has been well known at least since 1996 (time at the practice gained FDA approval) to use electric current to induce bone growth.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard R. Shaffer whose telephone number is 571-272-8683. The examiner can normally be reached on 7-5 (Mon-Fri, every other Fri off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eduardo Robert can be reached on 571-272-4719. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

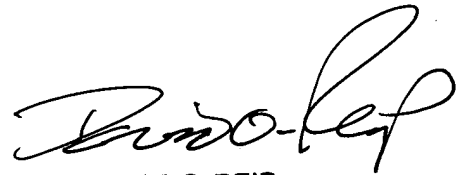


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard Shaffer  
10/26/2005



DAVID O. REIP  
PRIMARY EXAMINER